

The Global Scale Meteorological Data Visualization System is first developed in 2012 for the China Meteorological Administration. This system is mainly used to render the scientific data, helping meteorologists watch the changes of different fields, such as wind field and moisture field, and analyze the reason behind those changes.

We successfully delivered this system to the administration in 2015. The video you're seeing now is the version we deployed in a personal computer.

The first case is we're using this system to visualize the satellite data of a specific period.

Apart from the satellite data, we also utilize various technique to visualize the vector field data, the wind field:

- The arrow map
- Line Integral Convolution
- The stream line
- Particle system. We're not only able to depict the time varying data, but to visualize the wind field at a specific time with our particle system.

What's more, volume rendering, isoline and isosurface are used to visualize the scalar field, such as the relative humidity field.

Last but not least, hybrid visualization technique is also implemented to avoid the visual clutter problem.

As you can tell, after introducing this hardware system, our laboratory started conceiving how could we utilize its computation ability. So we came up with the idea of refactoring our Global Scale Meteorological Data Visualization System into a distributed software, which is exactly as you're seeing.